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EXAMINER

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ART UNIT

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Paper No. 18

Application Number: 09/430,642

Filing Date: October 29, 1999

Appellant(s): GELLER ET AL.

Birgit E. Morris  
For Appellant

MAILED  
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**EXAMINER'S ANSWER**

**(1) *Real Party in Interest***

This is in response to the appeal brief filed 2/6/02. A statement identifying the real party in interest is contained in the brief.

**(2) *Related Appeals and Interferences***

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

**(3) *Status of Claims***

The statement of the status of the claims contained in the brief is incorrect. A correct statement of the status of the claims is as follows:

This appeal involves claims 6-10.

Claims 9-10 have been amended subsequent to the final rejection.

Claims 1-3 are withdrawn from consideration as not directed to the elected invention.

Claims 4-5 have been canceled.

**(4) *Status of Amendments After Final***

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) *Summary of Invention***

The summary of invention contained in the brief is correct.

## **(6) Issues**

The appellant's statement of the issues in the brief is correct.

## **(7) Grouping of Claims**

The rejection of claims 6-10 stand or fall together because appellant's brief does not include a statement that this grouping of claims does not stand or fall together and reasons in support thereof. See 37 CFR 1.192(c)(7).

**(8) *ClaimsAppealed***

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(9) Prior Art of Record**

The following is a listing of the prior art of record relied upon in the rejection of claims under appeal.

5,382,931 Piloto et al. 1-1995

6,137,384 Kubota et al. 10-2000

### **(10) *Grounds of Rejection***

The following ground(s) of rejection are applicable to the appealed claims:

Claims 9, 6, and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Piloto et al. of record.

Piloto et al. (Fig. 7) discloses a waveguide filter including: a culmination of slots (68) which form conductive walls sandwiched in a dielectric substrate (46) and protruding through the substrate; the slots form the boundaries of resonators (42) which

are coupled together by iris sections (i.e. apertures) (67); metal layers are disposed on the top and bottom of the filter (see Col. 5, lines 65-67); the bottom metal layer would inherently provide support for the structure, especially since the bottom metal layer has additional layers on top of it; the waveguide filter structure is rectangular (Claim 6). Piloto et al. (Fig. 4 and Col. 8, lines 24-29) further teaches that additional dielectric layers cover the top metal layer (Claim 9). Piloto also teaches that the dielectric constant of the dielectric can be adjusted which would inherently vary the operating frequencies of the structure (see Col. 4, lines 21-25) (Claim 8).

Regarding Claim 9, note that it is only the final product which is patentable: Therefore, in the Piloto et al. structure the extra (i.e. more than the presently claimed invention) dielectric layers do not preclude the Piloto et al. rejection of the presently claimed invention since the "extra" layers in the Piloto et al. structure form one thick layer in the final product form.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Piloto et al. (of record).

Piloto et al. discloses a waveguide filter as described above. However, Piloto et al. does not disclose that the bottom metal layer is copper clad molybdenum.

It would have been considered obvious to one of ordinary skill in the art to have substituted a well-known copper clad molybdenum material in place of the bottom layer of conductive material in the Piloto et al. filter because it would have been a mere substitution of art-recognized equivalent conductive materials.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Piloto et al. (of record) in view of Kubota et al. (of record).

Piloto et al. discloses a waveguide filter as discussed above. Piloto et al. also discloses the filter having input/outputs (63) coupled to stripline electrodes (56 and 58) (Col. 7, line 10), and the input/outputs go through openings in the dielectric. However, Piloto et al. does not disclose a probe and connector which couple to the striplines or that the stripline is on the surface of the second green tape stack.

Kubota et al. (Fig. 7) discloses a straight connector and probe (i.e. e-probe) which couples to a resonant cavity.

It would have been obvious to one of ordinary skill in the art to have substituted a functionally equivalent probe and connector such as taught by Kubota et al. in place of the generic input/output coupling coupled to the stripline in the Piloto et al. device, because it would have provided a well-known input/output coupling and connection means for the waveguide filter.

Also it would have been considered obvious to one of ordinary skill in the art to have modified the filter as taught by the combination of Piloto et al. and Kubota et al. to have the stripline electrodes on the surface layer rather than an interior layer, because it would have been a mere art-recognized functionally equivalent location for the stripline electrodes when used for input and output in a filter.

**(11) Response to Argument**

Appellant argues that the Piloto et al. reference does not teach a metal support substrate or metal support plate. Appellant further argues that the Piloto reference teaches a thin gold layer which does not provide mechanical strength as compared to the appellants metal support substrate, and further that the appellant's metal support is in addition to, not in place of, a conductive layer on the green tape stack. Appellant also argues that the Piloto gold plating does not prevent shrinkage and thus requires trimming after firing which is not required in the appellant's invention. Furthermore, although appellant indicated that all of the claims will be considered together, the appellant argues the dependent claims 10 and 7 separately.

Regarding Claim 10, the appellant argues that it would not have been obvious to have substituted a conductive copper clad molybdenum layer in place of the conductive material layer taught by Piloto et al.

Regarding Claim 7, appellant raises a new argument that the Kubota et al. reference teaches a dielectric resonator filter rather than a waveguide and that the rejection of the combination of Piloto and Kubota is an improper hindsight rejection.

Contrary to appellant's arguments, the Piloto et al. conductive layer, which Piloto states is preferably made of gold, would inherently provide some degree of mechanical support especially since the conductive layer is under the dielectric layers. It should also be noted that appellant's argument that the substrate provides mechanical strength is not commensurate with what is claimed. Appellant's claims merely recite a "metal

support substrate" and include nothing specifically regarding mechanical strength or thickness. Furthermore, Piloto et al. teaches that the conductive layer provides the outer conductor of the waveguide structure to "guide and contain a propagating signal" (see Piloto Col. 5, lines 65-68 and Col. 6, lines 1-4). Therefore, not only would the conductive layer in the Piloto structure provide some inherent mechanical support, but the conductive layer also provides a confined pathway for directionally "supporting" the signal flow in the waveguide. As such, the conductive layer of Piloto et al. inherently provides some level of both mechanical and electrical support, be it large or small.

Appellant's argument that appellant's metal support is in addition to, not in place of, a conductive layer on the green tape stack is not different from the Piloto structure. Piloto et al. clearly teaches that the metal layer is on the outer surfaces of the waveguide (see Col. 5, lines 63-67, and Col. 8, lines 24-30) and that additional dielectric layers can be disposed on top of the conductive layer disposed on the top of the filter (see Fig. 8 and Col. 8, lines 55-59).

Regarding appellant's argument that the Piloto et al. structure does not prevent shrinkage and thus requires trimming after firing which is not required in the appellant's invention, this argument is not commensurate with what is claimed. The presently considered claims do not include any limitation that would preclude a prior art waveguide such as taught by Piloto that would require trimming after a firing process.

Regarding the argument that it would not have been obvious to have substituted a conductive copper clad molybdenum layer in place of the conductive material layer taught by Piloto et al., the rejection stated that a conductive copper clad molybdenum

would have been an art-recognized equivalent conductive material to the conductive material of Piloto et al. A conductive copper clad molybdenum would provide an equivalent conductive means for the external surface of the waveguide to a conductive material such as gold in the Piloto et al. waveguide. Conductive copper clad molybdenum was a well-known conductive material at the time of the present invention, for example note US Patent No. 5,725,808 (Tormey et al.).

Regarding the new argument that the Kubota et al. reference teaches a dielectric resonator filter rather than a waveguide and that the rejection of the combination of Piloto and Kubota is an improper hindsight rejection, it should be noted that the dielectric resonators are disposed in cavities. These cavities which include dielectric resonators are generically considered to be waveguides as is well-known in the art. The inclusion of probes in the waveguide of Piloto et al. is obvious in view of the fact that the Kubota et al. filter is considered a waveguide and includes probes; therefore both Piloto et al. and Kubota et al. are analogous art because they are from the same field of endeavor (i.e. waveguide cavities). Accordingly, the probes of Kubota et al. are considered art-recognized equivalent to the input/output means of Piloto et al. Thus for the above reasons it is asserted that the rejection is proper and is not an improper hindsight rejection since the obviousness of the combination would have been derived from prior art and not gleaned solely from appellant's disclosure.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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SEJ  
March 21, 2002

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